

INDIANA DEPARTMENT OF EDUCATION

Indiana Office of Career and Vocational Services

**INDIANA**

1999 EDITION  
**Career Pathways**

## **INTRODUCTION**

The traditional contract between employer and employee has fundamentally changed. No longer are people expected to work for one company their whole career. The loyalty that employer and employee once expected from each other has slipped away. Replacing it is a new, and still evolving, set of expectations that has broad implications for the way we plan our education, our careers, and our personal lives. Learning these new rules and how to “play them” - whether we agree with them or not - will give us a head start in Indiana’s workplace of tomorrow. This guide has been developed through a collaboration of counselors, academic and vocational teachers, occupational specialists and the business community in the hope of providing that head start to all Indiana’s young men and women.

### **The New Playing Field**

One hundred and fifty years ago, most people in Indiana worked on the farm and pretty much stayed in one place for their entire life. One hundred years later, it was safe to assume that people would learn to use some kind of technology in Indiana’s steel, automobile, or auto parts factory, but that this training and technology would last their entire career. Once Hoosiers made decisions about what jobs they wanted or could get, they kept that job the rest of their lives and didn’t have to think about them again. Today, with so many opportunities and possibilities available, flexibility has become the name of the game. Thus, in planning a career, it’s become more important to stay generalized as well as specialized. Successful individuals will be those who have the ability to do a variety of things. People who can only work in a specialty risk losing everything if that specialty goes away. And many do.

### **The New Rules**

There is no geographic isolation anymore. As the globe shrinks, it forces us to learn about and deal with the rules of different cultures. The computer is everywhere from the farms in Terre Haute and South Newton to the McDonald’s restaurant in Connersville. Indiana agriculture uses satellite-generated infrared images to see where to use more fertilizer on crops. Even more important than these major changes, is the fact that the traditional education system, where students once got an education and used it the rest of their lives, is no longer sufficient. Under the new rules, all of us must constantly be upgrading and updating our skills. Adult education and retraining is necessary in all jobs.

The information in this Career Pathways Guide is offered to Guidance Counselors, Teachers, Parents, Students and Administrators as a set of guidelines, suggestions for planning a high school education that will best prepare each and every student for the “new rules” on that “new playing field.”

### **Using the Guide**

This Indiana Career Pathways’ Guide offers course recommendations and sequences based on Indiana’s fourteen career clusters. These clusters represent groups of occupations that share similar attributes. We have chosen to use these career clusters as the framework for high school course planning in order to help students at all levels see connections between what they are learning in school and how those skills and concepts lead to successful careers.

Finally, in working with these Career Pathways, we also needed to recognize that students' personal circumstances or lifestyle preferences may compel them to remain close to their home communities or local area, limiting prospective jobs to those offered by the distinctive mix of industries in their region or local community. Others may be attracted to a particular career for other reasons - glamour and travel, high potential earnings, the opportunity to work with children to name only a few. By focusing on rigorous and broad-based educational pathways related to industries, we hope it provides ample educational information and course planning guidance for Indiana's secondary high school students as they prepare for interesting, satisfying careers.

## Outcomes

The following course sequence recommendations reflect the efforts to achieve:

- ! a goal-oriented high school experience that has both a focus and purpose;
- ! higher standards of rigor and performance in both academic and career course planning;
- ! a sequence of educational experiences that address current and future economic opportunity in Indiana;
- ! a core of courses tied to challenging academic concepts and technical skills with related electives;

**Issue:** As students are encouraged to enroll in rigorous academic and technical courses, it is expected that counselors, students and their families will have the flexibility to enroll students in those courses which are developmentally appropriate yet lead to completion of a Core 40 course of study.

## Resources:

Bureau of Labor Statistics. **Career Guide to Industries**; Bulletin 2453, 1994.

Indiana Department of Workforce Development. **Indiana Career Cluster Guide, 2<sup>nd</sup> Edition**, 1997-98.

Anthony Carnevale. **Education For What? The New Office Economy**, Education Testing Service, 1998.

Richard Knowdell. "The 10 New Rules for Strategizing Your Career," **The Futurist**, June-July 1998, pp.19-24.

"Promoting Student Success: Educational Services Planning and Implementation Guide K - Adult; Indiana Department of Education, 1998.

*Questions may be directed to Office of Career and Vocational Services, Room 229 State House, Indianapolis, IN 46204 or telephone 317-232-9162.*

# CLUSTER -01

- Many job openings are expected in the area of agricultural services and supplies with some opportunities in the food processing and timber harvesting industry.
- Agricultural occupations in Indiana range from farm workers to veterinarians, retail sales and service workers, to food processing and timber harvesting.
- The skills needed differ widely by occupation. Most entry level jobs (farm laborer, lawn service worker, nursery worker) require little or no prior training or experience. For professional, managerial, sales, or supervisory jobs such as veterinarian, grounds manager, or agricultural sales and service, some postsecondary training and some licensing are usually required.
- One third of the industry's full-time employees work 50 hours or more per week.
- Many jobs are outdoors, both in rural and suburban settings.

## Agriculture & Natural Resources

## AGRICULTURE AND NATURAL RESOURCES EDUCATIONAL PATHWAYS

Although there have long been jobs requiring agricultural knowledge or skills that were not based on farms, the number and variety of these jobs have increased significantly in recent years. Improvements in agricultural productivity have dramatically reduced the number of jobs available on Indiana's farms. Our growing reliance on agricultural technology has also reduced employment on farms and created a need for workers with new agricultural skills, people who provide services both to farms and to people living and working in Indiana's cities and towns.

**Outlook:** Wage and salary jobs in agricultural services are projected to increase through the year 2005 faster than average. Employment is expected to grow in response to the rapidly increasing demands for various agricultural services by commercial and industrial developers, homeowners using lawn maintenance and landscaping services, and the tendency of farm owners to contract out services that in the past they performed themselves.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training vocational certification and/or additional education/training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Food Processing and Production	Machine Operators Quality Control Inspectors Sales and Service	Technical Sales and Service	Management	Moderate Demand
Agriculture Service and Supplies	Retail Sales Person *Pest Control	Retail Sales Person *Truck Driver Animal Care Takers Graders/Sorters *Pest Inspectors	Technical Sales Management Purchasing Agents Forester	High Demand
Garden and Landscape Service	Nursery Worker Greenhouse Worker Grounds Keeper	*Custom Applicators Nursery Manager Greenhouse Manager	Manager Lawn and Garden Service	Moderate to High Demand
Agriculture and Food Science			Animal Breeder Plant Geneticist Animal Health Agricultural Extension	Low Demand

\*licensing may be required

## Careers in Agriculture and Natural Resources Recommended High School Course Sequence

Food Processing & Production	Core							Career Electives
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Biology	Elective	Physical Education  <b>and</b>  **Computer Applications	Fundamentals of Agricultural Science and Business	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> </ul> Agriculture: <ul style="list-style-type: none"> <li>• Plant/Soil Science</li> <li>• Agricultural Mechanization</li> </ul>
	YEAR 10	English 10  <b>or</b>  Speech	Three year sequence required	Chemistry  <b>or</b>  *Chemistry of Foods	World Geography  <b>and</b>  Psychology	Health  <b>and</b>  Physical Education	Animal Science	Technology Education: <ul style="list-style-type: none"> <li>• Manufacturing Processes</li> <li>• Manufacturing Systems</li> </ul> Family and Consumer Science: <ul style="list-style-type: none"> <li>• Nutrition and Wellness</li> <li>• Advanced Foods and Nutrition</li> </ul>
	YEAR 11	American Literature  <b>and</b>  Speech		Physics	United States History	Electives: • Technology Education <b>or</b> • Foreign Language <b>or</b> • Fine Arts	Agribusiness Management	
	YEAR 12	English 12 <b>or</b> Technical Writing		*Food Science	United States Government  <b>and</b>  Economics	Electives: • Technology Education <b>or</b> • Foreign Language <b>or</b> • Fine Arts	Field Experience: • Supervised Agricultural Experience (SAE) • Agricultural Processing and Production Internship	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Agriculture and Natural Resources Recommended High School Course Sequence

Agriculture Service & Supplies	Core							Career Electives
	YEAR 9	English	Mathematical Topics I, II, III  Algebra and Geometry	Biology	Elective	Physical Education  <b>and</b>  **Computer Applications	Fundamentals of Agricultural Science and Business	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> </ul> Agriculture: <ul style="list-style-type: none"> <li>• Animal Science</li> </ul> Business: <ul style="list-style-type: none"> <li>• Marketing Foundations</li> <li>• Accounting I</li> <li>• Entrepreneurship</li> </ul> Technology Education: <ul style="list-style-type: none"> <li>• Transportation Systems</li> </ul> <ul style="list-style-type: none"> <li>• Transportation Processes</li> <li>• Technology Enterprise</li> </ul>
	YEAR 10	English 10	Three year sequence required  <b>or</b>  Algebra I, Algebra II <b>and</b> Geometry	Chemistry	World Geography  <b>and</b>  Sociology	Health  <b>and</b>  Physical Education	Agricultural Mechanization	
	YEAR 11	American Literature  <b>and</b>  Speech		*Environmental Science <b>or</b> Physics	United States History	Elective	Agribusiness Management	
	YEAR 12	English 12 <b>or</b> *Technical/Business Communication	Math Elective	Advanced Environmental Science <b>or</b> Advanced Chemistry	United States Government  <b>and</b>  Economics	Elective	<ul style="list-style-type: none"> <li>• Field Experience:</li> <li>• Supervised Agricultural Experience (SAE)</li> <li>• Marketing Field Experience</li> <li>• Agricultural Services Internship</li> </ul>	

\*indicates non-Core 40 Courses

\*\*Keyboarding prerequisite

## Careers in Agriculture and Natural Resources Recommended High School Course Sequence

Garden & Landscape Service	Core							Career Electives
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Biology	Elective	Physical Education  **Computer Applications	Fundamentals of Agricultural Science and Business	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> </ul> Agriculture: <ul style="list-style-type: none"> <li>• Agricultural Mechanization I</li> <li>• Agribusiness Management</li> </ul>
	YEAR 10	English 10	Three year sequence required	Chemistry	World Geography  <b>and</b> Psychology	Health  <b>and</b> Physical Education	Plant and Soil Science	Technology Education: <ul style="list-style-type: none"> <li>• Design Processes</li> </ul> Business: <ul style="list-style-type: none"> <li>• Marketing Foundations</li> <li>• Entrepreneurship</li> <li>• Computer Applications, Advanced</li> <li>• Accounting</li> </ul>
	YEAR 11	American Literature  <b>and</b> Speech		*Horticulture Science	United States History	Elective	Landscape Management	Fine Arts: <ul style="list-style-type: none"> <li>• Drawing and Painting</li> </ul>
	YEAR 12	English 12 <b>or</b> *Technical / Business Communication	Elective	*Environmental Science <b>or</b> Advanced Environmental Science	United States Government  <b>and</b> Economics	Elective	Field Experience: <ul style="list-style-type: none"> <li>• Supervised Agricultural Experience (SAE)</li> <li>• Marketing Field Experience</li> <li>• Landscape Services Internship</li> </ul>	

\*indicates non-Core courses

\*\*Keyboarding prerequisite



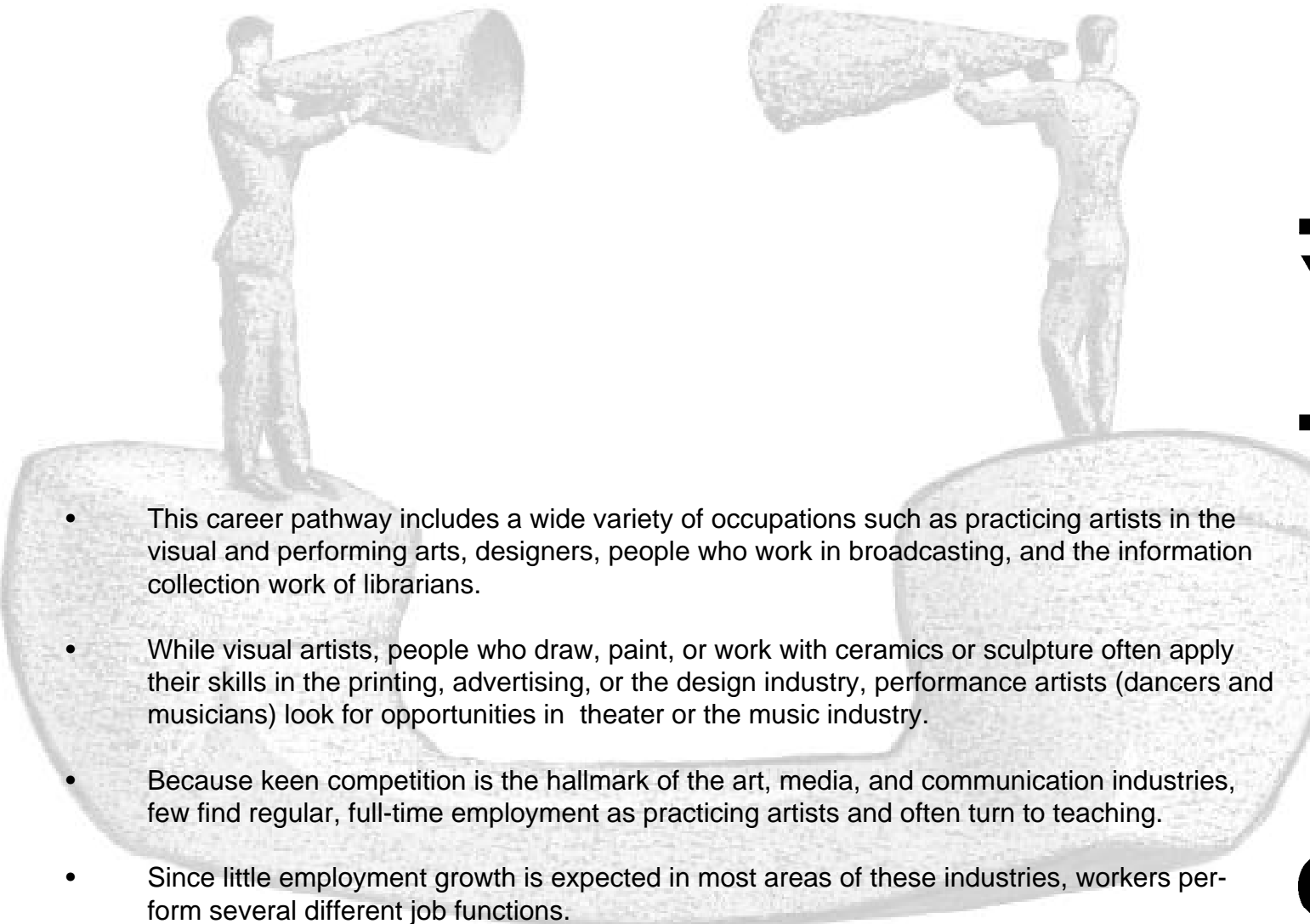
## Careers in Agriculture and Natural Resources

### Recommended High School Course Sequence

Agriculture & Food Science	Core							Career Electives
	YEAR 9	English 9	Algebra I	Biology	Elective	Physical Education <b>and</b> **Computer Applications	Fundamentals of Agricultural Science and Business	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> </ul> Agriculture: <ul style="list-style-type: none"> <li>• Environmental Science</li> <li>• Agribusiness Management</li> <li>• Supervised Agricultural Experience (Research Project)</li> </ul> Family and Consumer Science: <ul style="list-style-type: none"> <li>• Advanced Foods and Nutrition</li> <li>• Chemistry of Foods and Nutrition</li> </ul> Field Experience: <ul style="list-style-type: none"> <li>• Agricultural Internship</li> </ul>
	YEAR 10	English 10	Geometry	Chemistry	World Geography <b>and</b> Psychology	Health  Physical Education	Plant and Soil Science	
	YEAR 11	American Literature <b>and</b> Speech	Algebra II	Biology II	United States History	Foreign Language	Food Science	
	YEAR 12	English 12	Probability and Statistics <b>or</b> Advanced Math Elective	Advanced Environmental Science	United States Government <b>and</b> Economics	Foreign Language	Animal Science	

\*\*Keyboarding prerequisite

# CLUSTER -02

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- A faint, artistic illustration in the background shows two figures standing on large, rounded stones. Each figure is holding a large megaphone to their mouth, as if shouting or broadcasting. The figures are rendered in a simple, sketchy style. The stones they stand on are also simple, rounded shapes.
- This career pathway includes a wide variety of occupations such as practicing artists in the visual and performing arts, designers, people who work in broadcasting, and the information collection work of librarians.
  - While visual artists, people who draw, paint, or work with ceramics or sculpture often apply their skills in the printing, advertising, or the design industry, performance artists (dancers and musicians) look for opportunities in theater or the music industry.
  - Because keen competition is the hallmark of the art, media, and communication industries, few find regular, full-time employment as practicing artists and often turn to teaching.
  - Since little employment growth is expected in most areas of these industries, workers perform several different job functions.

# Art, Media & Communications

## ART, MEDIA, AND COMMUNICATIONS EDUCATIONAL PATHWAYS

While a notable characteristic of the arts' industry is the many seasonal and part-time positions, there are opportunities for skilled individuals to apply their talents in other settings, particularly in design, advertising, teaching, and the communications' industry. For example, the creative department of most advertising firms develop visual concepts and designs for advertisements. The production side of the broadcasting industry also offers opportunities for those individuals with a background in art and media production.

**Outlook:** Entertainers, actors, and musicians are especially likely to work part time due to the large numbers of talented performers competing for a limited number of positions. Although the majority of artists and performers are forced to supplement their income through other jobs, opportunities in the performing art's sector may increase with a growing population and rising interest in the arts. Some design opportunities may be found in Indiana's floral and floral design industry or in commercial photography.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training vocational certification and/or additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Fine and Performance Art	Photographer Painter Potter Musician	Commercial Photographer Video production Sound studio manager Dancer, Choreographer, Actor, Musician	Film and Video producers Sound studio manager Theater Manager Producers, directors,	Low Demand overall with moderate demand for commercial photographers.
Design Group	Stagecraft worker Floral design Florist	Stagecraft worker Interior design Home furnishing Fashion design	Theater designer	Moderate Demand
Architecture Group	CAD operator (Computer Assisted Drafting)	CAD operator (Computer Assisted Drafting)	Architect Landscape architect	Low Demand
Information Collection and Dissemination		Library assisting Multimedia assisting Internet/website developer Writer/Editor	Librarian Journalist (newspaper and broadcast) Writers, Editors Broadcaster	Low Demand overall with moderate demand for library assistants.
Humanities			Interpreters English literature specialist	Low Demand

### Careers in Art, Media, and Communications Recommended High School Course Sequence

Fine & Performance Art		Core						Career Elective		
		YEAR 9	English 9	Mathematical Topics I, II, III	Earth/Space Science	Elective	Physical Education  <b>and</b>  **Computer Applications	Drawing and Painting <b>or</b>  Performing Ensemble	• Orientation to Life and Careers  Fine Arts: <ul style="list-style-type: none"><li>• Computer Graphics</li><li>• Music</li><li>• 2D /3D Design</li><li>• Commercial Photography</li></ul>	
			YEAR 10	English 10	Three year sequence required  <b>or</b>  Algebra I, II  <b>and</b>	Biology	World Geography  <b>and</b>  World History	Health  <b>and</b>  Physical Education	Media Arts: Photography, Film, Video Production <b>or</b>  Performing Ensemble	Business: <ul style="list-style-type: none"><li>• Radio/Television Communication</li><li>• Computer Applications, Advanced</li><li>• Marketing Foundations</li><li>• Accounting</li></ul>
				YEAR 11	American Literature	Geometry	Chemistry <b>or</b>  Physics	United States History	Foreign Language	Entrepreneurship
		YEAR 12	Integrated English 12 and Music, History, and Criticism	Music: Composition / Theory	Elective	Government  <b>and</b>  Economics	Foreign Language	Studio work such as an extended Independent Project <b>or</b> Computers In Design and Production		
Field Experience: <ul style="list-style-type: none"><li>• Interdisciplinary Cooperative Experience</li><li>• Fine and Performance Arts Internship</li></ul>										

\*non-Core 40 course

\*\*keyboarding prerequisite

## Careers in Art, Media and Communications Recommended High School Course Sequence

Design	Core							Career Elective
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Earth/Space Science	Elective	Physical Education  <i>and</i>  **Computer Applications	Drawing  <i>and</i>  Painting	• Orientation to Life and Careers  Agriculture: • Horticulture • Plant and Soil Science • Landscape Management
	YEAR 10	English 10	Three year sequence required  <i>or</i>  Algebra I, II	Biology	World Geography  <i>and</i>  World History	Health  <i>and</i>  Physical Education	Design Process	Business: • Computer Applications, Advanced • Marketing Foundations • Accounting
	YEAR 11	American Literature	<i>and</i>  Geometry	Chemistry <i>or</i> Physics	United States History	Foreign Language	Computers in Design and Production Systems	Family and Consumer Science: • Housing and Interiors  Fine Arts: • Media Arts • Photography, • Film, Video Production
	YEAR 12	English 12 Integrated Music, History, Criticism	Math Elective	Elective	Government  <i>and</i>  Economics	Foreign Language	Studio work or extended Independent Project  Field Experience: • Interdisciplinary Cooperative Experience • Design Internship	

\*indicates non-Core 40 course

\*\*keyboarding prerequisite

### Careers in Art, Media, and Communications Recommended High School Course Sequence

Architecture	Core							Career Elective
	YEAR 9	English 9	Algebra I	Earth/Space Science	Elective	Physical Education  <b>and</b>  **Computer Applications	Construction Systems	<ul style="list-style-type: none"><li>• Orientation to Life and Careers</li></ul> Business: <ul style="list-style-type: none"><li>• Computer Applications, Advanced</li><li>• Accounting</li></ul>
	YEAR 10	World Literature	Geometry	Biology	World Geography  <b>and</b>  World History	Health  <b>and</b>  Physical Education	Design Process	 Technology Education <ul style="list-style-type: none"><li>• Computers in Design and Production Systems</li><li>• Manufacturing Systems</li><li>• Technology Enterprise</li></ul> Family and Consumer Sciences: <ul style="list-style-type: none"><li>• Housing and Interiors</li></ul>
	YEAR 11	American Literature	Algebra II	Chemistry	United States History	Foreign Language	Construction Process	
	YEAR 12	English 12 <b>and</b> Technical Writing	Trigonometry	Physics	Government  <b>and</b>  Economics	Foreign Language	Field Experience: <ul style="list-style-type: none"><li>• Interdisciplinary Cooperative Experience</li><li>• Architectural, City Planning or Construction Internship</li></ul>	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Art, Media, and Communications

### Recommended High School Course Sequence

Information Collection & Dissemination	Core							Career Elective
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Earth/Space Science	Elective  <b>and</b>  Health	Physical Education  <b>and</b>  **Computer Applications	Communication Systems	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> <li>English               <ul style="list-style-type: none"> <li>• Mass Media</li> <li>• Library Media</li> </ul> </li> <li>Business               <ul style="list-style-type: none"> <li>• Technical/Business Communication</li> <li>• Computer Applications, Advanced</li> <li>• Journalism</li> </ul> </li> </ul>
	YEAR 10	English 10	Three year sequence required  <b>or</b>	Biology	World Geography <b>or</b> World History	Foreign Language	Communication Processes	
	YEAR 11	American Literature  <b>and</b>  Speech	Algebra I, II  <b>and</b>  Geometry	Chemistry <b>or</b> Physics	United States History	Foreign Language	Media Arts: Photography, Film, Video	
	YEAR 12	English 12	*Data Analysis and Probability	Elective	United States Government  <b>and</b>  Economics	Psychology  <b>and</b>  Sociology	Field Experience: <ul style="list-style-type: none"> <li>• Interdisciplinary Cooperative Experience</li> <li>• Public, School, or Industry Library Internship</li> </ul>	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Art, Media, and Communications

### Recommended High School Course Sequence

Humanities	Core							Career Elective
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Earth/Space Science	Elective  <b>and</b>  Health	Physical Education  <b>and</b>  **Computer Applications	Creative Writing	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> <li>Business <ul style="list-style-type: none"> <li>• Technical/Business Communication</li> <li>• Computer Applications, Advanced</li> </ul> </li> <li>English <ul style="list-style-type: none"> <li>• Journalism</li> <li>• Multi-Media (English)</li> <li>• Theater and Drama</li> <li>• Genres of Literature</li> <li>• Themes in Literature</li> </ul> </li> </ul>
	YEAR 10	World Literature	Three year sequence required  <b>or</b>	Biology	World Geography <b>or</b> World History	Foreign Language	Media Arts: Photography, Film, Video	
	YEAR 11	American Literature  <b>and</b>  Speech	Algebra I, II  <b>and</b>  Geometry	Chemistry <b>or</b> Physics	United States History	Foreign Language	Psychology  <b>and</b>  Sociology	
	YEAR 12	British Literature	*Data Analysis and Probability	Elective	United States Government  <b>and</b>  Economics	Foreign Language	Field Experience: <ul style="list-style-type: none"> <li>• Public Service, School, or Industry Library Internship</li> <li>• Advertising or Publishing Industry Internship</li> </ul>	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite



# CLUSTER -03

- As technology becomes more sophisticated, employers look for engineers and technicians skilled in new technology.
- Nonmanufacturing industries, especially service industries and areas related to the production of specialty chemicals, pharmaceuticals, and plastic materials provide good opportunities both for engineers and technicians.
- Engineering technicians are in high demand in Indiana's communications, manufacturing, and chemical and pharmaceutical industry.
- Due to constantly changing and advancing technology, employers are interested in well informed, knowledgeable employees who possess the skills needed to keep up with advancements in industry.
- Firms provide on-site, job-related training to upgrade the skills of technicians and engineers.

## Engineering, Science & Technologies

## ENGINEERING, SCIENCE & TECHNOLOGIES EDUCATIONAL PATHWAYS

Employment in the fields of engineering, science and technology is heavily influenced by two factors - the growing availability and use of advanced technologies and the state of Indiana's economy. Manufacturing and service companies rely on these professional and technical workers to improve both product design and efficiency. Civil engineers and technical specialists are also needed as improvements are made to roads, bridges, water and pollution control systems and other public facilities.

**Outlook:** While Indiana employs a large number of engineers, at present there are more opportunities overall for technicians who can work with teams of chemical and mechanical engineers in the electronics/communications and pharmaceutical industry. New and growing opportunities may be found in the area of water quality and wastewater treatment. Nearly 70% of workers in this career area have some college education in a technical program or at a college of engineering.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training vocational certification and/or education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Engineering Group		Engineering Mechanic	Engineer Aerospace, Electrical and Environmental, Geological and Industrial, Mechanical, Computer	Low Demand
Engineering Technology	Electrical/Electric Assemblers Cable Installing and Repair	Machinist Tool and Die Operator Pipefitter and Millwright Engineering Technician	Automated Systems Engineer Manufacturing Information Systems Quality Assurance	High Demand
Natural Sciences/ Technology		Safety Inspector Food Engineer Pipefitter Chemical Technician	Waste management Specialist Water Quality Specialist Natural Resource Scientist Mining Engineer	High Demand
Quantitative Research		Statistician	Actuary Quantitative Business Research Mathematician	Low Demand
Computer Systems			Systems Analyst Computer Programmer	Low Demand

## Careers in Engineering, Science & Technologies

### Recommended High School Course Sequence

Engineering	Core						Career Elective
	YEAR 9	English 9	+Geometry	Biology	Physical Education	Health <b>and</b> **Computer Applications	<ul style="list-style-type: none"> <li>• Technology Systems Level:               <ul style="list-style-type: none"> <li>-Communication <b>or</b></li> <li>-Construction <b>or</b></li> <li>- Manufacturing <b>or</b></li> <li>-Transportation</li> </ul> </li> </ul>
	YEAR 10	English 10	Algebra II	Chemistry	World History <b>or</b> World Geography <b>and</b> Psychology	Foreign Language	<ul style="list-style-type: none"> <li>• Technology Education:               <ul style="list-style-type: none"> <li>-Communication</li> <li>-Construction</li> <li>-Manufacturing</li> <li>-Transportation</li> </ul> </li> <li>• Technology Enterprise</li> <li>• Computers in Design and Production Systems</li> </ul>
	YEAR 11	American Literature <b>and</b> Speech	Pre-Calculus <b>or</b> Calculus	Physics	United States History	Foreign Language	<ul style="list-style-type: none"> <li>• Technology Systems</li> </ul>
	YEAR 12	English 12 <b>or</b> Technical Writing	Probability and Statistics	Advanced Physics	United States Government <b>and</b> Economics	Elective	Field Experience: <ul style="list-style-type: none"> <li>• Engineering Internship</li> <li>• Interdisciplinary Cooperative Experience</li> <li>• Industrial Cooperative Experience</li> </ul>

+Algebra I in Grade 8 **or** two mathematics courses in one year

\*\*Keyboarding prerequisite

## Careers in Engineering, Science Technologies

### Recommended High School Course Sequence

Engineering Technology	Core							Career Electives
	YEAR 9	English 9	Mathematical Topics I , II, III  Algebra and Geometry	Biology	Elective	Physical Education  <b>and</b> **Computer Applications	Communication Systems  <b>and</b> Manufacturing Systems	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> </ul> Business: <ul style="list-style-type: none"> <li>• Computer Applications, Advanced</li> <li>• Computer Operations/ Programming</li> </ul> Technology Education: <ul style="list-style-type: none"> <li>• Computers in Design and Production Systems</li> </ul>
	YEAR 10	English 10	Three year sequence required	Earth/Space Science	World Geography  <b>and</b> Current Problems, Issues, Events	Health  <b>and</b> Physical Education	Communication Processes  <b>and</b> Manufacturing Processes	
	YEAR 11	American Literature  <b>and</b> Speech		Physics	United States History	Elective	Fundamentals of Engineering  <b>and</b> Technology and Society	
	YEAR 12	English 12 <b>or</b> Technical/ Business Communication	Advanced Math	Elective	United States Government  <b>and</b> Economics <b>or</b> *Global Economics	Elective	Field Experience: <ul style="list-style-type: none"> <li>• Interdisciplinary Cooperative Experience</li> <li>• Industrial Cooperative Experience</li> <li>• Engineering Technology Internship</li> </ul>	

\*non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Engineering, Science Technologies Recommended High School Course Sequence

Natural Sciences/Technology	Core						Career Electives	
	YEAR 9	English 9	Algebra I	Biology	Elective	Physical Education  <b>and</b>  **Computer Applications	Animal Science <b>or</b> Plant and Soil Science	<ul style="list-style-type: none"><li>• Orientation to Life and Careers</li></ul> Agriculture <ul style="list-style-type: none"><li>• Supervised Agricultural Experience (Research Project)</li></ul>
	YEAR 10	English 10	Geometry	Chemistry	World Geography  <b>and</b>  Sociology	Health  <b>and</b>  Physical Education	*Environmental Science	Business <ul style="list-style-type: none"><li>• Advanced computer Applications</li></ul> Family and Consumer Science <ul style="list-style-type: none"><li>• Chemistry of Foods</li></ul>
	YEAR 11	American Literature  <b>and</b>  Speech	Algebra II	Physics	United States History	Elective	Technology and Society  <b>and</b>  Fundamentals of Engineering	Science <ul style="list-style-type: none"><li>• Earth and Space Science</li></ul>
	YEAR 12	English 12 <b>or</b> Technical Writing	*Data Analysis and Probability	Advanced Environmental Science	United States Government  <b>and</b>  Economics	Elective	Field Experience: <ul style="list-style-type: none"><li>• Interdisciplinary Cooperative Experience (Waste Water Management, Recycling)</li><li>• Natural Sciences/Technology Internship</li><li>• Science Projects and Techniques</li></ul>	

\*indicates non-Core 40

\*\*Keyboarding prerequisite

## Careers in Engineering, Science Technologies Recommended High School Course Sequence

Quantitative Research	Core							Career Electives
	YEAR 9	English 9	+Geometry	Biology	Physical Education	Music <i>and</i> Health	**Computer Applications	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> <li>Technology Education <ul style="list-style-type: none"> <li>• Technology Systems: <ul style="list-style-type: none"> <li>-Communication <i>or</i></li> <li>-Construction <i>or</i></li> <li>-Manufacturing <i>or</i></li> <li>-Transportation</li> </ul> </li> <li>• Technology Processes: <ul style="list-style-type: none"> <li>-Communication <i>or</i></li> <li>-Construction <i>or</i></li> <li>-Manufacturing <i>or</i></li> <li>-Transportation</li> </ul> </li> <li>• Technology Enterprise</li> </ul> </li> <li>Business: <ul style="list-style-type: none"> <li>• Accounting I and Accounting II</li> <li>• Technical/Business Communication</li> </ul> </li> </ul>
	YEAR 10	English 10	Algebra II	Chemistry	World History <i>and</i> Sociology	Foreign Language	Computer Operations/Programming	
	YEAR 11	American Literature <i>and</i> Speech	Calculus	Physics	United States History	Foreign Language	Fundamentals of Engineering <i>and</i> Technology and Society	
	YEAR 12	English 12 <i>or</i> Technical Writing	Probability and Statistics	Elective	United States Government <i>and</i> Economics	Elective	Marketing Seminar <i>or</i> Business College Level	
							Field Experience: <ul style="list-style-type: none"> <li>• Marketing Field Experience</li> <li>• Business Research Internship</li> </ul>	

+Algebra I in Grade 8 or two mathematics courses in one year.

\*\*Keyboarding prerequisite

## Careers in Engineering, Science Technologies Recommended High School Course Sequence

Computer Systems	Core							Career Electives
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Health  <b>and</b>  **Computer Applications	Technology Systems: -Communication <b>or</b> -Construction <b>or</b> -Manufacturing <b>or</b> -Transportation	<ul style="list-style-type: none"> <li>• Career Planning and Success Skills</li> </ul> Business: <ul style="list-style-type: none"> <li>• Business Management</li> <li>• Accounting I</li> <li>• Accounting II</li> <li>• Computer Programming</li> </ul> Technology Education: <ul style="list-style-type: none"> <li>• Technology Enterprise</li> <li>• Fundamentals of Engineering</li> <li>• Technology and Society</li> <li>• Computers in Design and Production Systems</li> </ul>
	YEAR 10	English 10	Geometry	Chemistry	World Geography  <b>and</b>  Current Problems, Issues, Events	Foreign Language	Computer Application, Advanced	
	YEAR 11	American Literature  <b>and</b>  Speech	Algebra II	Physics	United States History	Foreign Language	Computer Operations/Programming	
	YEAR 12	English 12 <b>or</b> Technical Writing	Probability and Statistics	Elective	United States Government  <b>and</b>  Economics	Elective	Field Experience: <ul style="list-style-type: none"> <li>• Business Cooperative Experience <b>or</b></li> <li>• Computer Operations Internship</li> </ul>	

\*\*Keyboarding prerequisite

# CLUSTER -04

- Employment in manufacturing and processing careers includes people who work in manufacturing, printing, and metal fabrication as well as those who work in the utilities industry at power plants.
- Indiana ranks first in U.S. steel production and is in the top five for motor vehicle parts, assembly machines, truck and bus bodies, pharmaceuticals, and medical instruments.
- Indiana's manufacturing plants employ many business managers, engineers, drafters, engineering technicians, computer programmers, machine operators, and fabricators, as well as metalworking and plastics-working machine operators.
- Workers enter these industries with a variety of educational backgrounds but in general must have strong mathematical and communication skills.

# Manufacturing & Processing



## MANUFACTURING AND PROCESSING EDUCATIONAL PATHWAYS

Indiana is steel country producing more steel than any other state - 22% of the nation's output. What's more, the state ranks in the top five for motor vehicle parts, assembly machines, truck and bus bodies, pharmaceuticals and medical instruments. The printing and publishing provided nearly 1 million jobs nationally, ranking it among the largest industries in the U.S. While many of Indiana's manufacturers are large multinationals, there are many small firms as well, employing fewer than 10 people. Workers enter the manufacturing industry with various educational backgrounds. In general, job applicants must be high school graduates with strong mathematical and communication skills.

**Outlook:** While employment in manufacturing is sensitive to cyclical swings in the economy, overall projections suggest a decline in the number of people employed in manufacturing, Indiana's growing plastics industry offers ample employment opportunity in manufacturing. In addition, the need to replace manufacturing workers may result in many job openings since nearly a quarter of this workforce is more than 50 years old. Spurred by increased demand for printed materials, employment in the printing and publishing industry also is expected to grow.

<b>Occupational Focus</b>	<b>High School Education and on- the-job training</b>	<b>Skill Training vocational certification and/or education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Metals/Plastics/Production/Process	Welder Grinding, Lapping and Buffing Machine Tool Setter Extruding and Drawing Machine Setters Rolling Machine Setters Sheet Metal Workers	Welder and Metal Fabricator Tool and Die Worker Precision Inspectors Machinist Numerical Control Machine Tool Operator Heat Treating Operator Tool and Die Maker Metal Fabrication - Metal and Plastic Machine Operator or Tender Quality Control Inspector	Engineers Managers	High Demand
Printing and Publishing	Printing press Operator Set-up Operator	Precision Photographic Processor Proofreader	Graphic Designer Writer Editor	Moderate Demand

## Careers in Manufacturing and Processing Recommended High School Course Sequence

Core								Career Elective
YEAR 9	English 9	Algebra I	Biology	Physical Education	**Computer Applications  <i>and</i>  Health	Manufacturing Systems  <i>and</i>  Communication Systems	• Orientation to Life and Career  Technology Education: • Manufacturing Processes • Design Processes • Technology Enterprise  Business: • Entrepreneurship • Computer Applications Advanced	
YEAR 10	English 10	Geometry	Chemistry	World Geography  <i>and</i>  Current Problems, Issues, Events	Elective	Computer Operations/ Programming		
YEAR 11	American Literature  <i>and</i>  Speech	Trigonometry	Physics	United States History	Elective	Computers in Design & Production Systems		
						Vocational Welding or Machine Trades		
YEAR 12	English 12 <i>or</i> Technical Writing	*Data Analysis and Probability	Elective	United States Government <i>and</i> Economics	Elective	Field Experience: • Interdisciplinary Cooperative Experience • Manufacturing Internship		

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Manufacturing and Processing Recommended High School Course Sequence

Printing/Publishing	Core						Career Elective	
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Health <i>and</i> **Computer Applications	Communication Systems	<ul style="list-style-type: none"><li>• Orientation to Life and Career</li></ul> English <ul style="list-style-type: none"><li>• Journalism (school newspaper, yearbook)</li></ul> Technology Education: <ul style="list-style-type: none"><li>• Communication Processes</li><li>• Computers in Design and Production Systems</li></ul> Business: <ul style="list-style-type: none"><li>• Technical/Business Communication</li><li>• Entrepreneurship</li></ul> Fine Arts: <ul style="list-style-type: none"><li>▸ Graphic Design</li></ul>
	YEAR 10	World Literature <i>and</i> Literature of the Twentieth Century	Geometry	Chemistry	World History <i>and</i> Current Problems, Issues and Events	Elective	Computer Applications, Advanced	
	YEAR 11	American Literature <i>and</i> Speech	Algebra II	Physics	United States History	Photography	Design Processes	
							Vocational Printing	
YEAR 12	English 12 <i>or</i> *Journalism	*Data Analysis and Probability	Elective	United States Government <i>and</i> Economics	Technology and Society <i>or</i> Technology Enterprise	Field Experience: <ul style="list-style-type: none"><li>• Interdisciplinary Cooperative Education</li><li>• Printing/Publishing Internship</li><li>• Vocational Printing</li></ul>		

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

# CLUSTER -05

- Precision crafts and mechanical production and repair workers form the backbone of the manufacturing industry.
- These workers account for 2 out of 10 workers in Indiana's motor vehicle and equipment manufacturing industry.
- These machinists, tool and die makers, inspectors, mechanics, and millwrights must possess highly developed technical and problem solving skills along with the skills needed to work on a team.
- Continuing education and training, which are critical for advancement in the field, combine classroom with on-the-job training under the guidance of more experienced workers.
- Apprenticeship programs, which may last up to five years, include courses in mechanical drawing, reading engineering specifications, tool design and programming, hydraulics, algebra and trigonometry (shop mathematics), and electronics.

## Mechanical Repair &

## Precision Crafts

## MECHANICAL REPAIR AND PRECISION CRAFTS EDUCATIONAL PATHWAYS

The twentieth century's industrial and automotive mechanics are the twenty-first century's technicians. These are the people who install, service, and repair the machines and engines as well as the computers that monitor and control them. In Indiana, these computer controlled machines are as commonplace as the pencil was at the beginning of the 1900's. They are found not only in offices but in the cabs of Indianapolis, the combines of Terre Haute, and the McDonald's restaurants throughout Indiana. Global positioning satellite systems are among the many high-tech additions to trucks and cars. These technicians will fuel the growth of Indiana's economy.

**Outlook:** Today's employment outlook for mechanical repair and precision crafts workers is extremely good for those who are well trained and prepared for continuing education. As technology increases in complexity, employers increasingly prefer to hire graduates of post secondary training programs and to then offer additional on-the-job training. Ongoing training is becoming key to occupational advancement.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training Vocational certification and/or additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Equipment and Instrumentation Production and Repair	Precision Inspectors, Testers, Graders Heating/A/C, Refrigeration Mechanics/Installers Sheet Metal Workers Electrical and Electronic Assemblers Building Maintenance	Industrial Machinery Repair -Electrical/Electronic Equipment (including robotics) Industrial Mechanic Business Machine Repair Machine Tool Cutting Operators (metals and plastics) Utility Maintenance Technician	Electrical/Electronics Engineer	High Demand
Engine and Heavy Equipment Repair Group	Auto mechanics Tire Changers/Repairers Aircraft Mechanics Millwrights Machinery Maintenance Workers Carpenters - Marine Maintenance	Automotive Technician Aircraft Engine Specialist Heavy Equipment Mechanics Millwrights Diesel Engine Mechanics Electrical Marine Maintenance		High Demand

## Careers in Mechanical Repair and Precision Crafts

### Recommended High School Course Sequence

Core								Career Elective
Appliance/Light Equipment Instrument Repair	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Biology	Physical Education	**Computer Applications  <i>and</i> Health	Communication Systems  <i>and</i> Manufacturing Systems	<ul style="list-style-type: none"> <li>• Orientation to Life and Career</li> </ul> Technology Education: <ul style="list-style-type: none"> <li>• Manufacturing Processes</li> <li>• Communication Processes</li> <li>• Technology Enterprise</li> <li>• Technology Systems</li> </ul>
	YEAR 10	English 10	Three year sequence required	Chemistry <i>or</i> Physics	Sociology <i>and</i> Current Problems, Issues, Events	Elective	Design Processes	Trade and Industrial Education: <ul style="list-style-type: none"> <li>• Appliance Repair</li> <li>• Heating, Ventilation, Air Conditioning</li> <li>• Building Maintenance</li> <li>• Business Machine Repair</li> </ul>
	YEAR 11	American Literature  <i>and</i> Speech		Advanced Environmental Science	United States History	Elective	Computers in Design & Production Systems	Business: <ul style="list-style-type: none"> <li>• Computer Applications, Advanced</li> <li>• Business Management</li> <li>• Entrepreneurship</li> </ul>
							Motor Repair Electrical/Electronics	
	YEAR 12	English 12 <i>or</i> Technical Writing	Trigonometry <i>or</i> Math Elective	Elective	United States Government <i>and</i> Economics	Elective	Field Experience: <ul style="list-style-type: none"> <li>• Interdisciplinary Cooperative Experience</li> <li>• Manufacturing Internship</li> </ul>	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Mechanical Repair and Precision Crafts

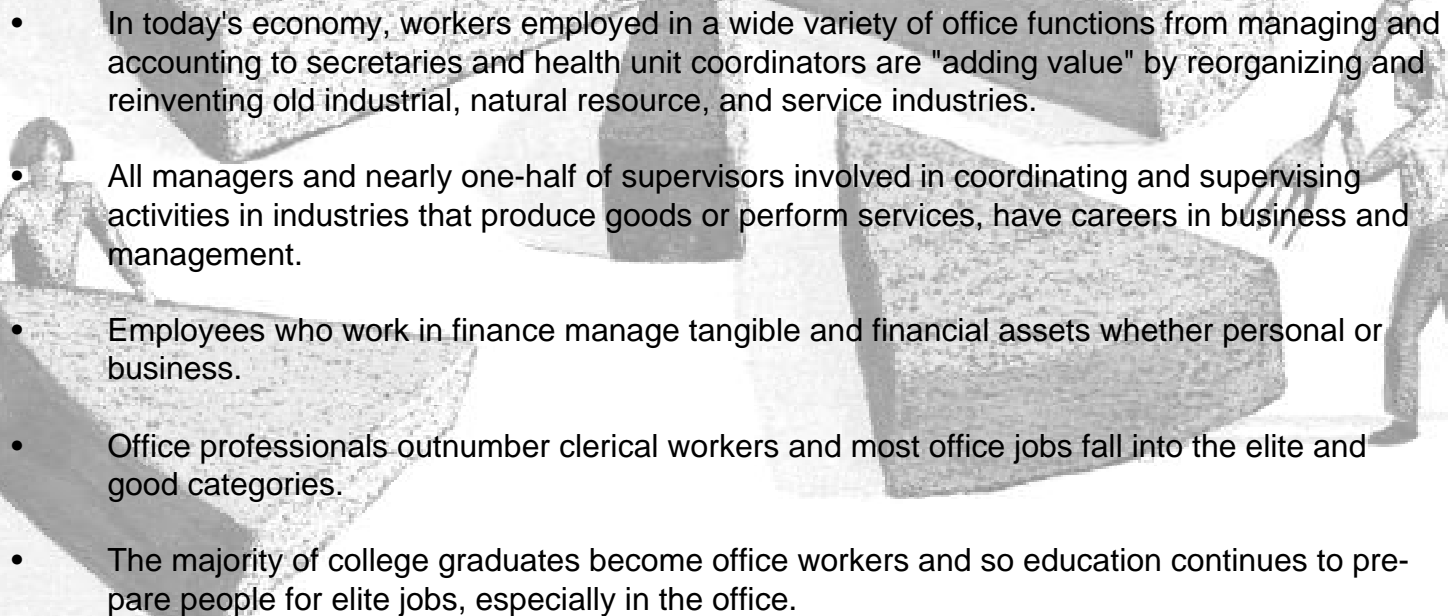
### Recommended High School Course Sequence

Engine and Heavy Equipment Repair	Core							Career Elective
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Biology	Physical Education	Health  <i>and</i> **Computer Applications	Transportation Systems  <i>and</i> Manufacturing Systems	<ul style="list-style-type: none"> <li>• Orientation to Life and Career</li> </ul> Agriculture: <ul style="list-style-type: none"> <li>• Agricultural Mechanics</li> </ul> Business: <ul style="list-style-type: none"> <li>• Technical/Business Communication</li> <li>• Computer Applications, Advanced</li> <li>• Entrepreneurship</li> </ul> Technology Education <ul style="list-style-type: none"> <li>• Technology Enterprise</li> </ul> Trade and Industry: <ul style="list-style-type: none"> <li>• Collision Repair</li> <li>• Aircraft Mechanics</li> <li>• Electrical/Electronics</li> <li>• Small Engine Repair</li> </ul>
	YEAR 10	World Literature  <i>and</i> Contemporary Literature	Three year sequence required	Chemistry	World History  <i>and</i> Current Problems, Issues and Events	Elective	Transportation Processes	
	YEAR 11	American Literature  <i>and</i> Speech		Physics	United States History	Elective	Computers in Design and Production Systems	
							Automotive Service, Diesel Mechanics	
	YEAR 12	English 12 <i>or</i> Technical Writing	Elective	Advanced Environmental Science <i>or</i> Elective	United States Government <i>and</i> Economics	Elective	Field Experience: <ul style="list-style-type: none"> <li>• Interdisciplinary Cooperative Education</li> <li>• Industrial Cooperative Education</li> </ul>	

\*non-Core 40 course

\*\*Keyboarding prerequisite

# CLUSTER -06

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- In today's economy, workers employed in a wide variety of office functions from managing and accounting to secretaries and health unit coordinators are "adding value" by reorganizing and reinventing old industrial, natural resource, and service industries.
  - All managers and nearly one-half of supervisors involved in coordinating and supervising activities in industries that produce goods or perform services, have careers in business and management.
  - Employees who work in finance manage tangible and financial assets whether personal or business.
  - Office professionals outnumber clerical workers and most office jobs fall into the elite and good categories.
  - The majority of college graduates become office workers and so education continues to prepare people for elite jobs, especially in the office.

Finance

## Business, Management &



## BUSINESS, MANAGEMENT, AND FINANCE EDUCATIONAL PATHWAYS

Office work dominates the U.S. economy and it is the members of the new “office economy” - 52.6 million well-educated workers - who are changing the way America works. These middle managers, insurance agents, real estate brokers, financial planners, executive secretaries, small business owners, editors, clericals, accountants, and sales representatives make up a larger portion of the workforce and earn more money (50% of total earnings) than any other part of the economy. In this “office economy,” office professionals outnumber clerical workers and as the education of the workforce has risen there has been a decline in the less-skilled jobs.

**Outlook:** Labor market projections for business occupations in Indiana are extremely strong. From receptionist and information clerk to paralegal to systems analysts and general managers to top executives opportunities are those for those with solid academic skills, good teamwork skills, and the skill to continue learning. However, there is one special note to consider, while technology is important, it is the use and management of technology that is more directly related to continued success in this career area.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training Vocational certification and/or additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Occupational Outlook</b>
Management		Assistant Manager -Food Services -Hotel/Motel -Purchasing Manager -Travel and Tourism	Manager -Food Service and Lodging -City, County, State Administration -Health Care System -Human Resource/Personnel -Purchasing	High Demand
Secretarial/Other Clerical	Receptionist Insurance Claims Clerk Customer Service Representative Information Processing Clerk Banking Support Services Bank Teller	Front Office/Medical Assisting Legal Secretary Administrative Assistant Medical Transcription Office/Clerical Supervisor Accounting/Accounts Clerk	Executive Assistant Health Unit Coordinator	High Demand
Finance Group			Budget Analyst Accounts and Auditors Financial Planning Investment Securities Internal Finance	High Demand

## Careers in Business, Management, and Finance

### Recommended High School Course Sequence

Management	Core							Career Electives
	YEAR 9	English 9	Algebra	Biology	Physical Education	Health <i>and</i> **Computer Applications	Business Foundations	<ul style="list-style-type: none"><li>• Career Planning and Success Skills</li><li>• Marketing</li></ul> <p>Business</p> <ul style="list-style-type: none"><li>• Accounting I</li><li>• Accounting II</li><li>• Global Economics</li><li>• Business Technology Lab</li><li>• Business Cooperative Experiences</li></ul> <p>Social Studies</p> <ul style="list-style-type: none"><li>• Psychology</li><li>• Sociology</li></ul>
	YEAR 10	English 10 <i>or</i> Speech	Geometry	Chemistry <i>or</i> Physics	World Geography <i>and</i> World History	Foreign Language <i>or</i> Elective	Marketing <i>or</i> Accounting I	
	YEAR 11	English 11	Algebra II	Science Elective	United States History	Foreign Language <i>or</i> Fine Arts	Business Management <i>and</i> Entrepreneurship	
	YEAR 12	English 12 <i>or</i> *Technical/ Business Communication	Calculus <i>or</i> Trigonometry  Probability and Statistics <i>or</i> *Data Analysis and Probability	Health <i>and</i> Elective	United States Government <i>and</i> Economics	Foreign Language <i>or</i> Fine Arts	Business, College Level <i>or</i> Business and Personal Law and International Business <i>or</i> Marketing Field Experience	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Business, Management and Finance

### Recommended High School Course Sequence

Finance	Core						Career Electives
	YEAR 9	English 9	Algebra 1	Biology	Physical Education	Computerized Keyboarding Document Formatting <b>and/or</b> **Computer Applications	Business Foundations
	YEAR 10	English 10 <b>or</b> Speech	Geometry	Chemistry <b>or</b> Physics	World Geography <b>or</b> World History	Health <b>and</b> Computer Applications Advanced	Accounting I
	YEAR 11	English 11	Algebra II	Science Elective	United States History	Foreign Language <b>or</b> Elective	Accounting II
	YEAR 12	*Technical/ Business Communications <b>or</b> English 12	Discrete Mathematics  Probability & Statistics <b>or</b> *Data Analysis and Probability	Elective	United States Government  <b>and</b> Economics	Foreign Language <b>or</b> Fine Arts	Entrepreneurship and International Business <b>or</b> Business College Level <b>or</b> Computerized Accounting Lab (2 periods)

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Business, Management & Finance

### Recommended High School Course Sequence

Secretarial/Steno	Core							Career Elective
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Computerized Keyboarding / Document Formatting  <b>and</b> **Computer Applications	+Business Foundations	Career Planning and Success Skills  Business: • Business Lab Technology I • Business Management • Accounting II • Business and Personal Law • International Business
	YEAR 10	English 10 <b>or</b> Speech	Geometry	Science Elective	World Geography <b>or</b> World History	Health  <b>and</b> Computer Applications Advanced	Computer Applications, Advanced <b>or</b> Business Technology Lab I	Health Occupations: • Medical Terminology • Medical Anatomy and Physiology
	YEAR 11	American Literature	Algebra II	Science Elective	United States History	Psychology  <b>and</b> Sociology	Business Management <b>and</b> Accounting I	
	YEAR 12	Technical Business Communications <b>or</b> English 12	Probability and Statistics <b>or</b> Data Analysis and Probability	Elective	United States Government  <b>and</b> *Global Economics	Elective	Business Cooperative Experiences <b>or</b> Business Technology Lab II <b>or</b> Computerized Accounting Lab II	

+Students may take 1 year of Business Foundations or 1 semester of Basic Business Foundations and 1 semester of Career Planning and Success Skills

\*indicates non-Core course

\*\*Keyboarding prerequisite

# CLUSTER -07



- The construction industry is divided into three major segments: general building contractors, heavy construction contractors, and special trade contractors.
- Construction workers build a variety of buildings both residential and commercial as well as highways, bridges and tunnels. These workers include special trade contractors who are responsible for carpentry, painting, plumbing, and electrical work.
- Construction work requires physical stamina and the ability to work outside or in partially enclosed structures. Most workers work full time, many over 40 hours a week.
- People with many different talents and educational backgrounds - managers, clerical workers, skilled craftworkers, and laborers find jobs in the construction industry.

# Building & Construction

## BUILDING AND CONSTRUCTION EDUCATIONAL PATHWAYS

The houses and apartments in which we live; the factories, offices, and schools in which we work; and the roads and bridges on which we travel are all products of the construction industry. Although many enter the industry's three segments (general building contractors, heavy construction contractors, and special trade contractors) without any formal training, skilled workers such as carpenters, bricklayers, etc. need several years of informal on-the-job training or apprenticeship training. Labor market information indicates that those who enter the industry from technical schools tend to advance to supervisory positions more quickly than those who begin work without any technical training.

**Outlook:** The construction industry is one of Indiana's and the nation's largest. Statewide, nearly 6 out of 10 jobs were with special trade contractors, primarily plumbing, electrical, and masonry contractors. Construction businesses tend to be small, the majority employing fewer than 10 workers and most work is in industrialized and highly populated areas. Most workers in this industry work full time, many over 45 hours a week. Continuing education is an integral part of successful advancement to supervisory positions.

Occupational Focus	High School Education and on-the-job training	Vocational Skill Training Apprenticeship Certification and or additional training and education	Education and Training (4 years or more)	Indiana's Occupational Outlook
Construction	Carpenter Roofer Glazier Plasterer Laborer Painter Insulation Worker	Bricklaying -Brick Mason -Stone Mason  Electrical Power -Electrician -Electric Power Line Installer -Lineworker  Carpentry -Framer -Finisher -Construction Equipment Operation -Heavy Equipment Operator Plumbing/Heating -Plumber -Heating Contractor  Operating Engineer	Senior Estimator/Purchasing Design Manager Operations Manager Senior Project Engineer Architect Interior Designer Community/Regional Planner	High Demand exists for masons, electrical power workers, carpenters, and heating/refrigeration workers

## Careers in Building and Construction Recommended High School Course Sequence

Construction	Core						Career Elective	
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Biology	Elective	Physical Education	Construction Systems	<ul style="list-style-type: none"><li>• Orientation to Life and Work</li></ul> Technology Education: <ul style="list-style-type: none"><li>• Manufacturing Systems</li><li>• Construction Process</li><li>• Technology Enterprise</li><li>• Technology and Society</li></ul> Business: <ul style="list-style-type: none"><li>• Business Management</li><li>• Computer Applications, Advanced</li></ul> Family and Consumer Science: <ul style="list-style-type: none"><li>• Housing and Interiors</li></ul> Fine Art: <ul style="list-style-type: none"><li>• Drawing</li></ul>
	YEAR 10	World Literature	Three year sequence required	Chemistry	World History  <b>and</b>  World Geography	Health  <b>and</b>  **Computer Applications	Design Process	
	YEAR 11	American Literature  <b>and</b>  Speech		Physics	United States History	Urban Affairs  <b>and</b>  Sociology	Computers in Design and Production Systems	
							Field Experience: <ul style="list-style-type: none"><li>• Vocational Building Construction</li><li>• Interdisciplinary Cooperative Experience</li></ul>	
YEAR 12	English 12 <b>or</b> *Technical/ Business Communications	Trigonometry <b>and</b> Analytic Geometry	Elective	United States Government  <b>and</b>  Economics	Elective	Field Experience: <ul style="list-style-type: none"><li>• Vocational Building Construction</li><li>• Interdisciplinary Cooperative Experience</li></ul>		

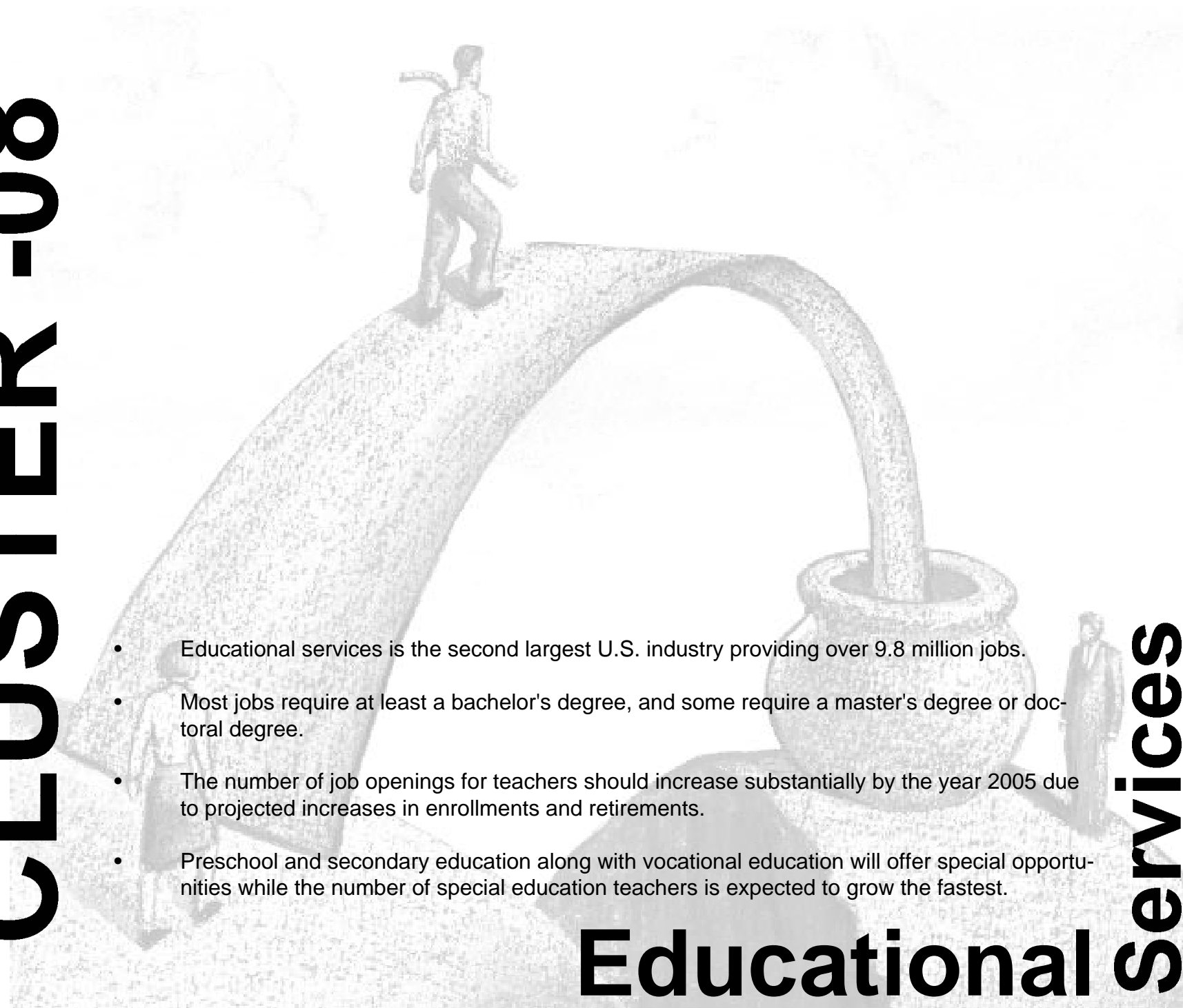
\*indicated non-Core 40 course

\*\*Keyboarding prerequisite

# CLUSTER -08

- Educational services is the second largest U.S. industry providing over 9.8 million jobs.
- Most jobs require at least a bachelor's degree, and some require a master's degree or doctoral degree.
- The number of job openings for teachers should increase substantially by the year 2005 due to projected increases in enrollments and retirements.
- Preschool and secondary education along with vocational education will offer special opportunities while the number of special education teachers is expected to grow the fastest.

## Educational services





## EDUCATIONAL SERVICES PATHWAY

Education is an important factor in everyone's life, particularly in this age of rapid technological and economic change. Lifelong learning is increasingly important to acquire new knowledge and upgrade one's skills. In Indiana today, educational services are found everywhere, in schools, libraries, vocational career centers and colleges. In Indiana in 1996-97 school year over 55,000 teachers were employed in the state's public schools. Since 1980's, when Indiana focused on the relationship between education and economic prosperity, much attention has been given to improving education for all students, particularly the large number who historically did not attend college. Today throughout Indiana, there is growing recognition that all students graduating from Indiana schools must be prepared for additional training and education at four-year, two-year, and technical colleges and universities.

**Outlook:** Employment in education depends heavily on the number of students residing in a community. In 1996-97, over 980, 000 children attended elementary and secondary schools in Indiana. Indiana teachers are some of the most highly educated workers in the state since, over the course of their careers, they are expected to continue their education well beyond a four-year degree. Employment in specific segments of education is projected to grow as Indiana is forced to replace a large number of experienced teachers who are preparing for retirement.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training vocational certification and/or additional education/training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Education Group	Preschool aide Administrative Support Worker	Teaching Assistant	Preschool Teacher Elementary Education Teacher Middle School/Junior High Teacher Secondary Education Teacher Vocational Education Teacher Special Education Teacher Career and Guidance Counselor  School Administrator  Adult and Continuing Education Teacher/Trainer Corporate Trainer Instructional Design	High Demand in specific areas: Preschool, High School, Vocational Education, and Educational Administration

## Careers in Educational Services Recommended Course Sequence

Education	Core							Career Elective
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Health <i>and</i> **Computer Applications	Child Development	<ul style="list-style-type: none"> <li>• Orientation to Life and Careers</li> <li>• Additional courses in content area subjects for those interested in careers in secondary education</li> </ul> Family and Consumer Science: <ul style="list-style-type: none"> <li>• Human Development and Family Wellness</li> <li>• Interpersonal Relations</li> </ul> Fine Arts: <ul style="list-style-type: none"> <li>• Art</li> <li>• Music</li> <li>• Theater and Drama</li> </ul> Technology Education: <ul style="list-style-type: none"> <li>• Technology Systems</li> <li>• Technology and Society</li> </ul>
	YEAR 10	World Literature <i>and</i> Twentieth Century Literature	Geometry	Chemistry	World Geography <i>and</i> World History	Foreign Language	Integrated Human Studies	
	YEAR 11	American Literature <i>and</i> Speech	Algebra II	Physics	United States History	Foreign Language	Elective	
	YEAR 12	English 12	Pre-calculus	Earth/Space Science	United States Government <i>and</i> Economics	Psychology <i>and</i> Sociology	Field Experience: <ul style="list-style-type: none"> <li>• Teaching Internship</li> <li>• Cadet Training</li> </ul>	

\*\*Keyboarding prerequisite

# CLUSTER -09



- The U.S. health industry is one of the largest with over 10 million jobs nationally.
- Indiana offers special opportunities to those health care workers trained in the use of technology such as medical technologists, medical laboratory technicians, emergency medical technicians, and dental laboratory technicians.
- Human services workers who assist physicians and psychiatrists, and provide home health care, are expected to grow in number.
- A variety of programs after high school provide specialized training for jobs in health services. Some hospitals provide training or tuition assistance in return for a promise to work for a particular length of time in the hospital after graduation.

**Health Services**

## HEALTH SERVICES EDUCATIONAL PATHWAYS

Combining medical technology and the human touch, the health services industry administers daily to the needs of many tens of millions of people - from newborns to the critically ill. The health care industry itself is divided into eight distinct segments: hospitals that offer trauma, diagnostic; special treatment and intensive care services; extended care facilities that provide nursing and rehabilitation services; medical and dental offices and clinics; public and home health care services; independent health practices such as optometrists, podiatrists, and chiropractors, physical therapists, etc.; specialized treatment centers; and medical and dental laboratories.

**Outlook:** Employment in the health services industry is projected to increase significantly in specific areas of health care through 2005.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training Vocational certification and/or additional training and education</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Health Diagnosis and Treatment		Licensed Practical Nurse	Registered Nurse, Audiologist Speech Pathologist Physician, Surgeon, Ophthalmologist Dentist, Optometrist, Veterinarian	Low to Moderate Demand in specific areas
Health Technology	Veterinary Assistant	Dental and Laboratory Assistant Bio-Med Tech as well as Cardiology, Veterinary, Emergency Medical, Precision Dental Lab	Dental Hygienist Medical Laboratory Technician	High Demand
Health Therapy	Aide -Physical, -Occupational, Recreational and Psychiatric	Physical Therapy Assistant Respiratory Therapist	Physical Therapist Occupational Therapist Recreational Therapist	Low Demand
Health Assisting	Nursing Assistant Medical Assistant	Human Services Worker Psychiatric Aide Home Health Aide Dental Assistant	Medical Office Management	High Demand
Other Health Related Groups		Medical Laboratory Assistant Pharmacy Technician Patient Advocate Volunteer Coordinator	Pharmacist Optician Medical Instrument Representative	Moderate Demand

**Career in Health Services  
Recommended Course Sequence**

Health Diagnosis & Treatment	Core						Career Elective	
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Health <i>and</i>  **Computer Applications	Integrated Human Studies I & II	Health Occupations: • Health Careers III • Medical Terminology  Agriculture: • Animal Science
	YEAR 10	Twentieth Century Literature	Geometry	Chemistry	World Geography <i>and</i> Sociology	Foreign Language	Integrated Human Studies III & IV	Business: • Business Law & Personal Law • Accounting • Business Management • Computer Applications, Advanced
	YEAR 11	American Literature <i>and</i> Speech	Algebra II	Advanced Biology	United States History	Foreign Language	Medical Anatomy and Physiology <i>and</i> Health Careers 1 & 2	
	YEAR 12	English 12 <i>and</i> Technical Writing	Trigonometry <i>or</i> Calculus	Physics	United States Government <i>and</i> Economics	Psychology <i>and</i> Sociology	Field Experience: • Health Occupations Extended Laboratory • Supervised Agriculture Experience-- Veterinary	

\*\*Keyboarding prerequisite

### Careers in Health Services Recommended High School Course Sequence

Health Technology	Core							Career Elective
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Health <i>and</i> **Computer Applications	Introduction to Health Careers <i>or</i> Integrated Human Studies I and II	Health Occupations: • Health Careers III  Technology Education: • Technology Systems  Business: • Computer Applications, Advanced  Fine Arts: • Art • Ceramics • Painting • Design
	YEAR 10	English 10 <i>and</i> Speech	Geometry	Chemistry	World Geography <i>and</i> Sociology	Foreign Language	Medical Terminology <i>and</i> Integrated Human Studies III and IV	
	YEAR 11	American Literature <i>and</i> Etymology	Algebra II <i>or</i> *Data Analysis and Probability <i>or</i> Statistics and Probability	Physics	United States History	Foreign Language	Medical Anatomy/Physiology <i>and</i> Health Career I & II	
	YEAR 12	English 12	Trigonometry <i>or</i> Calculus	Advanced Biology	United States Government <i>and</i> Economics	Psychology <i>and</i> Sociology	Field Experience: • Health Occupations Extended Lab including Medical Laboratories, Outpatient Department, Dental Lab	

\*\*Keyboarding prerequisite

**Careers in Health Services**  
**Recommended High School Course Sequence**

Health Therapy	Core							Career Elective
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra I Geometry	Biology	Physical Education	Health  <b>and</b>  **Computer Applications	Introductory to Health Careers  <b>or</b> Integrated Human Studies 1 & 2	Health Occupations: • Sports Medicine, Health Careers III  Fine Arts: • Art • Music • Ceramics • Painting  Business: • Computer Applications, Advanced
	YEAR 10	English 10	Three year sequence required  <b>or</b>	Chemistry	Advanced Physical Education	Foreign Language	Medical Terminology  <b>or</b> Integrated Human Studies III & IV	
	YEAR 11	American Literature  <b>and</b>  Speech	Algebra I, II <b>and</b> Geometry	Physics	United States History	Foreign Language	Medical Anatomy/Physiology  <b>and</b> Health Careers I & II	
	YEAR 12	English 12 <b>or</b> Technical Writing	Pre-Calculus	Advanced Biology  <b>or</b> Elective	United States Government  <b>and</b> Economics	Psychology  <b>and</b> Sociology	Field Experience: Health Occupations Extended LAB including: -Parks Department -Senior Citizens Organization -PT/OT Rehabilitation Centers -ER-Trauma and/or Respiratory Therapy Centers -Day Care Centers -Athletic Department	

\*\*Keyboarding prerequisite

**Careers in Health Services**  
**Recommended High School Course Sequence**

Core								Career Elective
Health Assisting	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Biology	Physical Education	Health  <b>and</b> <b>**Computer Applications</b>	Introduction to Health Careers  <b>or</b> Integrated Human Studies I & II	Health Occupations <ul style="list-style-type: none"> <li>• Health Careers III (Community Awareness)</li> <li>• Medical Anatomy/Physiology</li> <li>• Nursing Assisting</li> <li>• Dental Assisting</li> </ul>
	YEAR 10	English 10	Three year sequence required	Chemistry	Sociology  <b>and</b> World Geography	Foreign Language	Medical Terminology  <b>or</b> Integrated Human Studies III & IV	
	YEAR 11	American Literature  <b>and</b> Speech		Earth and Space Science	United States History	Foreign Language	Health Careers I & II	
	YEAR 12	English 12	Elective	Elective	United States Government  <b>and</b> Economics	Psychology  <b>and</b> Computer Applications, Advanced	Field Experience: Health Occupations Extended Lab	

**\*\*Keyboarding prerequisite**



# **Careers in Health Services** **Recommended High School Course Sequence**

All Other Health Related	Core							Career Elective
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Health <i>and</i> **Computer Applications	Introduction to Health Careers <i>or</i> Integrated Human Studies I & II	Health Occupations: • Health Careers III • Medical Anatomy/Physiology  Business: • Business Management • Computer Applications, Advanced
	YEAR 10	English 10	Geometry	Chemistry	World Geography <i>and</i> Sociology	Foreign Language	Medical Terminology <i>or</i> Integrated Human Studies III & IV	
	YEAR 11	American Literature <i>and</i> Speech	Algebra II	Advanced Chemistry	United States History	Foreign Language	Health Careers I & II	
	YEAR 12	English 12 or Technical Writing	Probability and Statistics <i>or</i> *Data Analysis and Probability	Physics	United States Government <i>and</i> Economics	Psychology <i>and</i> Computer Applications, Advanced	Field Experience: • Health Occupations Extended Lab (State Board of Health, Pharmacies, Opticians Office)	

\*non-Core 40 course

\*\*Keyboarding prerequisite

# CLUSTER -10

- The personal and commercial services industry includes a wide variety of workers in diverse occupations from child care, home assisting, to work in all aspects of the hospitality industry.
- People who work with preschoolers or assist teachers as aides make up the largest occupation in the child-care industry.
- All child-care workers are expected to meet minimal education or training requirements which often include training in health, first aid, and food preparation.
- Many jobs in the child-care industry have low wages and high turnover.
- The hospitality industry offers plentiful employment opportunities for part-time and seasonal work.
- People with some college education work in many of the jobs in the hospitality industry.
- Good communication skills, the ability to get along with people in stressful situations, and a neat appearance are keys to success in the industry.

# Personal & Commercial Services

## PERSONAL AND COMMERCIAL SERVICES EDUCATIONAL PATHWAYS

The Personal and Commercial Services industry is probably one of the most familiar industries in the economy. Industry establishments vary greatly in size and in the services they provide; although most are small and employ fewer than 20 people. People who work in this industry frequently work in shifts and those who are self-employed work long hours. Serving the public can often be hectic and often workers must deal with impatient and irate customers causing the work to be stressful, particularly during busy periods. As the industry grows and becomes more complex, the demand for people with special skills obtained in colleges, technical schools, and vocational schools is increasing.

**Outlook:** Job opportunities in this field are likely to be plentiful as Indiana works to attract more of the national hospitality and tourism business.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training vocational certification and/or additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Personal Service Group	Cleaning services Laundry and dry-cleaning workers Personal and Home Care Aides	Barbers Cosmetologists Hairstylist Funeral Directors		High Demand
Hospitality, Travel and Tourism	Launderers Cleaning and Building Service Workers Custodians Janitors	Hotel Desk Clerks Front Desk Supervisor Cleaning Management	Manager -Commercial Facilities - Food service and lodging -Hotel Marketing -Travel Services -Executive Housekeeping	High Demand
Food Services and Preparation Group	Food Servers Cafeteria Servers Counter/Coffee Shop Servers Cooks - Fast Foods/Cafeteria Waiter/Waitress Butchers	Bartenders Dining Room Manager Baker Restaurant Chef	Fast Food Franchise Manager Kitchen Manager Dietitian Nutritionist	High Demand

### Careers in Personal and Commercial Services Recommended High School Course Sequence

Core								Career Elective
Personal Services	YEAR 9	English 9	Mathematical Topics I , II, III  Algebra and Geometry	Biology	Health <b>and</b> **Computer Applications	Physical Education	Interpersonal Relations	<ul style="list-style-type: none"> <li>• Orientation to Life and Work</li> </ul>
	YEAR 10	English 10 <b>and</b> Composition	Three year sequence required	*Chemistry of Foods	Current Problems, Issues, Events <b>and</b> World Geography	Elective	Business Foundations	<ul style="list-style-type: none"> <li>Business: <ul style="list-style-type: none"> <li>• Business Management</li> <li>• Computer Applications, Advanced</li> <li>• Marketing Foundations</li> </ul> </li> <li>Family and Consumer Science: <ul style="list-style-type: none"> <li>• Human Development and Family Wellness</li> <li>• Nutrition and Wellness</li> </ul> </li> </ul>
	YEAR 11	American Literature <b>and</b> Speech		Chemistry	United States History	Elective	Accounting	<ul style="list-style-type: none"> <li>• Cosmetology</li> </ul>
	YEAR 12	English 12	Elective	Earth/Space Science	United States Government <b>and</b> Economics	Psychology <b>and</b> Sociology	Field Experience: <ul style="list-style-type: none"> <li>• Interdisciplinary Cooperative Experience</li> <li>• Health Occupations Extended Lab</li> <li>• Personal Service Internship</li> </ul>	

\*indicates a non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Personal and Commercial Services Recommended High School Course Sequence

Hospitality/Travel Services	Core							Career Elective
	YEAR 9	English 9	Mathematical Topics I , II, III	Biology	Physical Education	**Computer Applications <b>and</b> Health	Business Foundations	<ul style="list-style-type: none"> <li>• Career Planning and Success Skills</li> </ul> Agriculture: <ul style="list-style-type: none"> <li>• Natural Resource Management</li> </ul>
	YEAR 10	English 10	Algebra and Geometry	Earth/Space Science	World Geography <b>or</b> Current Problems, Issues, and Events	Foreign Language <b>or</b> Elective	Computer Applications, Advanced	Business: <ul style="list-style-type: none"> <li>• Accounting</li> <li>• Hospitality, Travel, and Tourism (may be taken concurrently with a Marketing Field Experience)</li> <li>• Marketing</li> </ul>
	YEAR 11	American Literature <b>and</b> Speech	Three year sequence required	Chemistry	United States History	Foreign Language <b>or</b> Elective	Marketing Foundations	Family and Consumer Sciences: <ul style="list-style-type: none"> <li>• Interpersonal Relations</li> <li>• Nutrition and Wellness</li> <li>• Advanced Nutrition and Foods</li> </ul>
	YEAR 12	English 12 <b>or</b> *Technical/ Business Communication	*Data Analysis and Probability	Elective	United States Government <b>and</b> *Global Economics	Field Experience: <ul style="list-style-type: none"> <li>• Technology Lab</li> <li>• Business Cooperative Experience</li> <li>• Marketing Field Experience</li> </ul>		

\*. Indicates non-Core 40 course

## Careers in Personal and Commercial Services Recommended High School Course Sequence

Food Services	Core						Career Elective	
	YEAR 9	English 9	Biology	Mathematical Topics I , II, III  Algebra and Geometry	Physical Education	Health  <i>and</i>  **Computer Applications	Nutrition and Wellness  <i>and</i>  Interpersonal Relations	• Orientation to Life and Careers  Business: • Entrepreneurship <i>or</i> Business Management • Marketing
	YEAR 10	English 10	*Chemistry of Foods	Three year sequence required	World Geography <i>or</i> Sociology	Foreign Language	Advanced Nutrition and Food	Family and Consumer Science: • Nutrition and Wellness • Advanced nutrition and Foods • FACS Issues and Applications
	YEAR 11	American Literature  <i>and</i>  Speech	Chemistry		United States History	Foreign Language	Field Experience:  • Food Industry Occupations I and II	
	YEAR 12	English 12 <i>or</i> *Technical/ Business Communication	Advanced Biology		Personal Finance  <i>and</i>  Elective	United States Government  <i>and</i>  Economics		Elective

\*indicates a non-Core 40 course

\*\*Keyboarding prerequisite

# CLUSTER -11

- While opportunities in social service occupations are projected to grow slowly in Indiana, faster than average growth is projected in recreation services.
- Workers in social services help the homeless, counsel the troubled, retrain the unemployed, offer support services for children and the elderly, and provide legal assistance.
- Seasonal and part-time jobs characterize the recreation service industry since many of its workers are employed by health and fitness clubs, golf courses, or commercial sports establishments.
- Although most employers prefer workers with some college work or a 4-year college degree, average earnings for most are lower than in many other industries
- Social service and recreation service workers often are on the job evenings, weekends, and holidays while some spend substantial time traveling.

## Legal, Social & Recreation Services

## LEGAL/SOCIAL AND RECREATIONAL SERVICES EDUCATIONAL PATHWAYS

Workers in this career cluster help the homeless; counsel the troubled; retrain the unemployed; care for children, the elderly, and those who cannot care for themselves. In addition to the various federal, state, and local governmental agencies that provide social services, about 84,000 legal, social, and recreational workers work for profit and nonprofit agencies provide social services nationwide. Social services' providers fall into four segments : individual and family services; residential care; job training and related services; and miscellaneous social services such as the American Red Cross, local community food banks, and community kitchens.

**Outlook:** Some occupations in social services have very specific entrance requirements, including professional speciality occupations and some requiring specific clinical training. Many employers prefer social service workers with some college work in human services or social work. Others prefer a 4-year college degree. A number of employers provide some additional training.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training vocational certification and/or additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Social Science Group			Regional and Urban Planners Economists Social Science College Teachers	Very Low Demand
Social Services Group	Home Health Aide	Community Services Parks and Recreation Sports/Fitness Management	Counselors Psychologists Health and Human Services Social Worker Parks and Recreation Worker Sports/Fitness Administration Clergy and Religious Workers	Moderate Demand
Legal Services Group		Legal Assistant Court Recorder City/County Clerk Paralegal	Lawyer County Prosecutor Public Defender Judge	Low Demand except for Legal Assistants



**Careers in Legal/Social and Recreational Services**  
**Recommended High School Course Sequence**

Legal Services	Core							Career Elective
	YEAR 9	English 9	Algebra 1	Biology	Health <i>and</i> **Computer Applications	Physical Education	Law Education	<ul style="list-style-type: none"><li>• Orientation to Life and Careers</li></ul> Business: <ul style="list-style-type: none"><li>• Computer Applications, Advanced</li><li>• Technical/Business Communication</li></ul>
	YEAR 10	English 10	Geometry	*Integrated Chemistry I	Current Problems, Issues, Events <i>and</i> Sociology	Foreign Language	Sociology	English: <ul style="list-style-type: none"><li>• Expository Writing</li></ul> Health Occupations: <ul style="list-style-type: none"><li>• Introduction to Health Careers</li></ul>
	YEAR 11	American Literature <i>and</i> Speech	Algebra II	Chemistry	United States History	Foreign Language	Business Law <i>and</i> Personal Law	Family and Consumer Sciences: <ul style="list-style-type: none"><li>• Human Development and Family Wellness</li></ul> Social Studies: <ul style="list-style-type: none"><li>• Urban Affairs</li></ul>
	YEAR 12	English 12	*Data Analysis and Probability	Advanced Environmental Science	United States Government <i>and</i> Economics	Elective	Field Experience: <ul style="list-style-type: none"><li>• Human Services I &amp; II</li><li>• Cooperative Occupational Family and Consumer Sciences</li><li>• Cooperative Office Education</li><li>• Legal Services, Social Services Internship</li></ul>	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite

## Careers in Legal/Social and Recreational Services

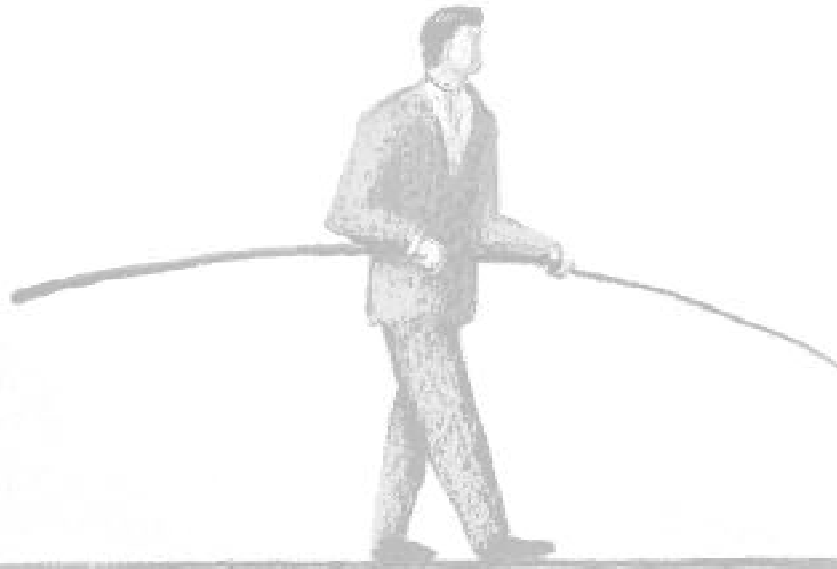
### Recommended High School Course Sequence

Social Services	Core						Career Elective
	YEAR 9	English 9	Algebra I	Biology	Physical Education	Health <i>and</i> **Computer Applications	Human Development and Family Wellness
	YEAR 10	English 10	Geometry	Chemistry	Sociology <i>and</i> World Geography	Foreign Language	*Computer Applications, Advanced
	YEAR 11	American Literature <i>and</i> Speech	Algebra II	Advanced Biology <i>or</i> Advanced Environmental Science	United States History	Foreign Language	Law and Ethics
	YEAR 12	English 12 <i>and</i> Technical Writing	*Data Analysis and Probability	Elective	United States Government <i>and</i> Economics	Psychology <i>and</i> Elective	Field Experience: • Human Services I & II • Cooperative Occupational Family and Consumer Science

\*indicates non-Core 40 course

\*\*Keyboard prerequisite

# CLUSTER -12



- Indiana offers many opportunities for those interested in careers in the protective services such as law enforcement, security services, and fire safety.
- The need for specific training in the field is determined by the agency offering employment but usually includes both technical training and additional related education.
- Law enforcement officers are expected to understand and follow the law and therefore study constitutional law and civil rights, state laws, local ordinances, and accident investigation in addition to having technical skills.
- Firefighting jobs require applicants to study fire science or have experience as a volunteer firefighter as well as pass a written test, tests of strength, physical stamina, coordination, and agility.
- Work in the protective services is usually limited to people 20 years or older who can meet the rigorous physical and personal qualifications.

## Protective Services

## PROTECTIVE SERVICES EDUCATIONAL PATHWAYS

Most police officers, guards, correction officers and firefighters are employees of either local, state, or the federal government. These workers stand ready to intervene in emergencies and natural disasters such as fires, earthquakes, tornadoes, and floods, and protect the public from crime. They help maintain order, enforce laws and ordinances, investigate accidents and sometimes are asked to give evidence in court. Candidates for police positions must be U.S. citizens at least 20 years old and meet rigorous physical and personal qualifications. Police departments increasingly encourage applicants to take training in law enforcement or administration of justice at two year or four year colleges where they learn about state and local laws, in addition to the protection of individual civil rights. Firefighters must have a high school education and must pass a written test, tests of physical stamina, agility as well as a medical examination. Experience as a volunteer firefighter or as a firefighter in the Armed Forces along with the completion of technical college courses in fire science improve applicants' chances for an appointment.

Outlook: Demand for protective services workers is spurred by a rising demand for law enforcement and firefighting positions throughout the country. Much of the expected increase in employment of firefighters is likely to occur in smaller communities with expanding populations.

<b>Occupational Focus</b>	<b>High School Education and on-the- job training</b>	<b>Skill Training vocational certification and/or additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Protective Services/Public Safety	Fire Fighters Security Guards Bailiff	Police Security Guard Correctional Officers Fire Inspector County Sheriff Immigration and Naturalization Agent (Border Patrol)	Firefighting and Prevention Supervisors State Police FBI Agent (Federal Bureau of Investigation) ATF Agent (Alcohol, Tobacco and Firearms)	High Demand

## Careers in Protective Services Recommend Course Sequence

Protective Services/Public Safety	Core						Career Elective
	YEAR 9	English 9	Mathematical Topics I - Algebra	Biology	Physical Education	Health <i>and</i> **Computer Applications	Law Education
	YEAR 10	World Literature <i>and</i> Contemporary Literature	Mathematical Topics I - Geometry	Chemistry	Law and Ethics	Foreign Language	Computer Applications, Advanced
	YEAR 11	American Literature <i>and</i> Speech	Mathematical Topics I - Algebra	Physics	United States History	Foreign Language	Advanced Physical Education
	YEAR 12	English 12 <i>and</i> Technical Writing	Elective	Sociology <i>and</i> Psychology	Government <i>and</i> Economics	Elective	Field Experience: • Interdisciplinary Cooperative Experience • Protective Services Internship

\*indicates non-Core 49 course

\*\*Keyboard prerequisite

# CLUSTER -13

- Marketing and sales occupations make up almost two-thirds of the workers in the retail sales industry.
- While there are no formal education requirements for most sales jobs, it is becoming increasingly important for sales workers to know about the products and merchandise available. Therefore, more stores now offer formal training programs.
- Although traditionally capable sales workers without a college degree could advance to management positions, a college education is becoming increasingly important for managerial positions.
- Some employers may conduct a background check-especially for those employees selling high-priced items.
- While the number of jobs in marketing and advertising are expected to grow, positions are often concentrated in large cities where competition for the best jobs is fierce.
- Most positions in the advertising industry require a bachelor's degree, preferably with broad liberal arts exposure.

## Marketing, Sales & Promotion

## MARKETING, SALES, AND PROMOTION EDUCATIONAL PATHWAYS

Marketing and promotions' firms in the marketing, sales, and promotion industry prepare advertising for other companies and organizations and arrange to place them in print, broadcast, or other media. They also sell advertising space for publications, radio, and television. When they are successful, the sales and distribution side of the industry (wholesale and retail sales) is the point of contact with the consumer. The marketing and sales industry is overwhelmingly white collar. Managers and executives, professionals, sales workers and administrative support workers account for 9 out of every 10 jobs. In businesses with only a few workers, employees do many different tasks, and the specific job duties of occupations are difficult to distinguish. Large companies employ people who specialize more and who often hold a college degree related to the jobs they perform. However, a bachelor's degree is not required for all positions nor for many entry-level positions in the industry.

**Outlook:** As Indiana's economy continues to grow, opportunities in marketing and sales will continue to be extremely good. Sales representatives, wholesale and retail buyers, food marketing positions are among those most in demand.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training Vocational certification and/or additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Marketing and Promotions	Advertising clerks	Public relations Writers Advertising sales Fashion Merchandising	Public relations Marketing and advertising Marketing research	Moderate Demand
Sales and Distribution	Sales representatives Parts salespersons Telemarketers Retail foods - sales Automotive sales and service	Sales agents - wholesale	Sales agents (scientific related products) Wholesale and retail buyers Purchasing agents Marketing research Real estate brokers Real estate and property managers	High Demand

## Careers in Marketing, Sales, and Promotion

### Recommended High School Course Sequence

Marketing/Advertising	Core						Career Electives	
	YEAR 9	English 9	Algebra I	Biology	Computer Applications	Physical Education	Business Foundations	Career Planning and Success Skills  Business: • Accounting I • Accounting II • Business Management • Computer Applications Advanced • Business, College Level
	YEAR 10	English 10 or Speech	Geometry	Chemistry	World Geography or World History	Computer Applications, Advanced	Marketing Foundations	Specialized Marketing Program • Fashion Merchandising • Hospitality, Travel & Tourism • Sports, Entertainment and Recreation • Entrepreneurship
	YEAR 11	English 11	Algebra II	Physics	United States History	Psychology  and Health	Select from specialized marketing program or Accounting I	
	YEAR 12	*Technical Business Communications or English 12	Probability and Statistics or *Data Analysis and Probability	Elective	United States Government  and Global Economics	Sociology	Field Experience: • Marketing Field Experience	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite



## Careers in Marketing, Sales and Promotion

### Recommended High School Course Sequence

Marketing Sales & Distribution	Core						Career Electives	
	YEAR 9	English 9	Algebra I	Biology	Computer Applications	Physical Education	Business Foundations	Career Planning and Success Skills  Business: ▶ Accounting I and II • Business Management • Computer Applications Advanced • Business, College Level
	YEAR 10	English 10 <i>or</i> Speech	Geometry	Chemistry	World Geography <i>or</i> World History	Computer Applications, Advanced	Marketing Foundations	Specialized Marketing Program ▶ Fashion Merchandising • Hospitality, Travel & Tourism ▶ Sports, Entertainment and Recreation • Financial Services Marketing • Entrepreneurship
	YEAR 11	English 11	Algebra II	Earth/Space Science	United States History	Psychology <i>and</i> Health	Select from specialized marketing program <i>or</i> Accounting I	
	YEAR 12	*Technical Business Communications <i>or</i> English 12	Probability & Statistics <i>or</i> *Data Analysis and Probability	Elective	United States Government  <i>and</i> Global Economics	Sociology	Field Experience: • Marketing Field Experience	
*indicates non-Core 40 course      **Keyboarding prerequisite								

# CLUSTER-14

- Firms that carry everything from food to furniture across town or across the world provide 92% of the jobs in the industry.
- Job opportunities in the trucking and warehousing industry are expected to be good for qualified truck drivers and mechanics.
- People who wish to become truck drivers must be at least 21 years old, have 20/40 vision, good hearing, a good driving record, and a state commercial drivers' license. They must also pass a written exam and a skills test.
- Truck drivers' hours are regulated by the Department of Transportation (DOT) which prohibit driving more than a certain number of hours at a stretch. Most long-distance drivers work close to the maximum 60 hours in any 7-day consecutive period.
- Employers usually provide some formal and informal on-the-job training.

## Transportation

## TRANSPORTATION EDUCATIONAL PATHWAYS

At some point, almost all goods sold and used in the United States are transported by truck or van. This industry operates cars, trucks, buses, airlines and boats at all hours of the day and night including weekends and holidays. Nationally there were more than 60,000 local trucking establishments in 1995 that accounted for 31% of the jobs in the industry. Large trucking companies operate most motor freight transportation terminals; while smaller, independent terminals, generally offer local service involving foodstuffs. The growing courier service firms that deliver letters, parcels, and small packages also operate locally and currently provide nearly 15% of the industry's jobs. In each of these areas of employment, the concept of "just-in-time" shipping is becoming commonplace. The average worker in the industry worked a 38.6 hour workweek; however, long-distance drivers tend to be on duty 60 hours in a 7-day consecutive period. Although many people assume most jobs in the transportation industry require no formal education, employers increasingly provide some formal and informal on-the-job training.

**Outlook:** The number of wage and salary jobs in the transportation industry is expected to grow especially for those interested in driving trucks. Drivers involved in long distance delivery are relatively well paid, yet many leave the career because of the lengthy periods away from home. Finally, the welfare of the industry is greatly influenced by the state of the national and regional economy.

<b>Occupational Focus</b>	<b>High School Education and on-the-job training</b>	<b>Skill Training Vocational Certification with additional education and training</b>	<b>Education and Training (4 years or more)</b>	<b>Indiana's Occupational Outlook</b>
Transportation Group	Bus Driver Taxi Driver Package delivery service	Truck Driver Bus Driver Air traffic Control Dredge Operators Ship and barge Pilots Dredge Operators Merchant Marine	Dispatcher Transportation Manager/Supervisor	High Demand

Note: many of these occupational areas have age and license requirements.

## Careers in Transportation Recommended High School Course Sequence

Land Transportation	Core						Career Elective	
	YEAR 9	English 9	Mathematical Topics I, II, III  Algebra and Geometry	Earth/Space Science	**Computer Applications	Physical Education	Transportation Systems	<ul style="list-style-type: none"><li>• Orientation to Life and Careers</li></ul> Technology Education: <ul style="list-style-type: none"><li>• Communication Systems</li><li>• Technology &amp; Sociology</li><li>• Technology Enterprise</li></ul>
	YEAR 10	World Literature  <i>and</i> Contemporary Literature	Three year sequence required	Biology	World Geography  <i>and</i> Current Problems, Issues, Events	Health  <i>and</i> Advanced Physical Education	Transportation Processes	Agriculture: <ul style="list-style-type: none"><li>• Environmental Science</li><li>• Agriculture Mechanization</li><li>• Natural Resource Management</li></ul> Business: <ul style="list-style-type: none"><li>• Accounting</li><li>• Marketing Foundations</li></ul>
	YEAR 11	American Literature  <i>and</i> Speech		Physics	United States History	Sociology  <i>and</i> Psychology	Design Systems	<ul style="list-style-type: none"><li>• Diesel Mechanics</li></ul>
	YEAR 12	English 12	*Data Analysis and Probability	*Chemistry of Foods	Government  <i>and</i> Economics	Elective	Field Experience: <ul style="list-style-type: none"><li>• Interdisciplinary Cooperative Experience</li><li>• Transportation Internship</li></ul>	

\*indicates non-Core 40 course

\*\*Keyboarding prerequisite